



## Complete Summary

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### GUIDELINE TITLE

Promoting asthma control in children.

### BIBLIOGRAPHIC SOURCE(S)

Registered Nurses Association of Ontario (RNAO). Promoting asthma control in children. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2004 May. 117 p. [187 references]

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

Asthma

### GUIDELINE CATEGORY

Evaluation  
Management  
Prevention

### CLINICAL SPECIALTY

Nursing

### INTENDED USERS

Advanced Practice Nurses  
Nurses

#### GUIDELINE OBJECTIVE(S)

To present nursing best practice guidelines for promoting asthma control in children, from infancy through to 18 years of age

#### TARGET POPULATION

Individuals from birth to 18 years of age who have a diagnosis of asthma

#### INTERVENTIONS AND PRACTICES CONSIDERED

##### Evaluation

1. Assessment of asthma control
2. Assessment of level of asthma acuity
3. Assessment of inhaler/device technique
4. Assessment of potential barriers to asthma management
5. Assessment of child/family knowledge of asthma

##### Management/Prevention

1. Asthma education that is developmentally appropriate and tailored to cultural beliefs and practices (e.g., inhaler/device technique training, information on medications, self-management skills, strategies to overcome barriers to asthma management)
2. Asthma action plan implementation and compliance
3. Advocate for referral to physician, community resources, and asthma educators, as applicable.
4. Regular assessments provided to identify gaps in care.
5. Nursing education recommendations and strategies directed at the competencies required for practice
6. Organization and policy recommendations and strategies directed at practice settings and the environment in order to facilitate nurses' practice

#### MAJOR OUTCOMES CONSIDERED

- Health care costs
- Quality of life
- Asthma control as measured by symptoms, need for short-acting beta<sub>2</sub> agonist, physical activity, exacerbations, work/school absence, forced expiratory volume in one second (FEV<sub>1</sub>) or peak expiratory flow (PEF) rate, PEF diurnal variation

## METHODOLOGY

#### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
Searches of Electronic Databases  
Searches of Unpublished Data

## DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A database search for existing asthma guidelines was conducted by a university health sciences library. An initial search of the Medline, Embase, and CINAHL databases for guidelines and articles published from January 1, 1995, to November 2002, was conducted using the following search terms: "asthma", "asthma education", "self-care", "self management", "paediatric asthma", "pediatric asthma", "practice guideline(s)", "clinical practice guideline(s)", "standards", "consensus statement(s)", "consensus", "evidence-based guidelines", and "best practice guidelines".

One individual searched an established list of Web sites for content related to the topic area. This list of sites, reviewed and updated in October 2002, was compiled based on existing knowledge of evidence-based practice Web sites, known guideline developers, and recommendations from the literature. Presence or absence of guidelines was noted for each site searched, as well as date searched. The Web sites at times did not house a guideline but directed to another Web site or source for guideline retrieval. Guidelines were either downloaded, if full versions were available or were ordered by phone/e-mail.

A Web site search for existing asthma guidelines was conducted via the search engine "Google," using the search terms identified above. One individual conducted this search, noting the results of the search, the Web sites reviewed, date, and a summary of the results. The search results were further critiqued by a second individual who identified guidelines and literature not previously retrieved.

Additionally, panel members were already in possession of a few of the identified guidelines. In some instances, a guideline was identified by panel members and not found through the previous search strategies. The results of this strategy revealed 18 guidelines, several systematic reviews, and numerous articles related to paediatric asthma.

The final step in determining whether the clinical practice guideline would be critically appraised was to have two individuals screen the guidelines based on a series of inclusion criteria. These criteria were determined by panel consensus:

- Guideline is in English.
- Guideline dated no earlier than 1997.
- Guideline is strictly about the topic area.
- Guideline is evidence-based (e.g., contains references, description of evidence, sources of evidence).
- Guideline is available and accessible for retrieval.

Eight guidelines reviewed using the Appraisal of Guidelines for Research and Evaluation (AGREE) instrument and one update not included in the initial AGREE review, were deemed suitable for critical review.

## NUMBER OF SOURCE DOCUMENTS

Following the appraisal process, the guideline development panel identified six guidelines to develop the recommendations cited in the guideline.

## METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

## RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Level of Evidence

I a - Evidence obtained from meta-analysis or systematic review of randomized controlled trials

I b - Evidence obtained from at least one randomized controlled trial

II a - Evidence obtained from at least one well-designed controlled study without randomization

II b - Evidence obtained from at least one other type of well-designed quasi-experimental study, without randomization

III - Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, and case studies

IV - Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

## METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses  
Systematic Review

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

In January of 2003, a panel of nurses and researchers with expertise in asthma care, asthma education, and asthma research, from institutional, community, and academic settings was convened under the auspices of the Registered Nurses

Association of Ontario (RNAO). The development phase was initiated by the compilation of a set of eighteen existing practice guidelines for the assessment and management of asthma, all of which included content related to children.

Following the extraction of identified recommendations and content from eight guidelines, the panel underwent a process of review, discussion, and consensus on the key evidence-based assessment criteria. The guideline development panel identified a need to provide a continuum of asthma care recommendations within RNAO nursing best practice guidelines. As a guideline on adult asthma had previously been developed, the panel utilized the framework already established to structure their development activities.

The panel members divided into subgroups to undergo specific activities using the short-listed guidelines, other literature, and documents for the purpose of drafting recommendations for nursing interventions. This process yielded a draft set of recommendations. The panel members as a whole reviewed the first draft of recommendations, discussed gaps, reviewed the evidence, and came to consensus on a final draft set of recommendations.

#### RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

#### COST ANALYSIS

Published cost analyses were reviewed.

#### METHOD OF GUIDELINE VALIDATION

External Peer Review  
Internal Peer Review

#### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This draft was submitted to a set of external stakeholders for review and feedback. Stakeholders represented various health care professional groups, clients, and families, as well as professional associations. External stakeholders were provided with specific questions for comment, as well as the opportunity to give overall feedback and general impressions. The results were compiled and reviewed by the development panel—discussion and consensus resulted in revisions to the draft document prior to dissemination.

### RECOMMENDATIONS

#### MAJOR RECOMMENDATIONS

The levels of evidence supporting the recommendations (Ia, Ib, IIa, IIb, III, IV) are defined at the end of the "Major Recommendations" field.

	Recommendation	Level of Evidence
Assessment of Asthma Control	1.0 All children identified or suspected of having asthma will have their level of control determined by the nurse.	Level IV
	<p>1.1 During a nursing assessment of respiratory health, every child should be screened to identify those most likely to be affected by asthma.</p> <ul style="list-style-type: none"> <li>• Have you ever been told you have (your child has) asthma?</li> <li>• Have you (has your child) ever used a puffer/inhaler or any type of medication for breathing problems? Have you experienced any improvement with these medications?</li> </ul>	Level IV
	<p>1.2 If a child is identified as, or suspected** of, having asthma, the level of control should be assessed based on:</p> <ul style="list-style-type: none"> <li>• Short-acting beta 2-agonist use</li> <li>• Daytime symptoms</li> <li>• Nighttime symptoms</li> <li>• Physical activity</li> <li>• Absence from school/work</li> <li>• Exacerbations</li> </ul> <p>**If suspected of having asthma, further evaluation by a physician is required.</p>	Level IV
	1.3 For children identified as potentially having uncontrolled asthma, the level of acuity needs to be assessed by the nurse and an appropriate medical referral provided (i.e., urgent care or follow-up appointment).	Level IV
Medications	2.0 Nurses will understand the pharmacology of medications used to treat asthma in children.	Level IV
	2.1 Nurses will be able to discuss the two main categories of asthma medications (controllers and relievers) with the child and their family members/caregivers, tailoring information for the developmental age of the child.	Level IV

	Recommendation	Level of Evidence
	2.2 All children with asthma should have their inhaler/device technique assessed by the nurse at each visit to ensure accurate use, as well as appropriateness of device for the developmental level of the child. Children with suboptimal technique will be coached in proper inhaler/device use or switched to a more appropriate delivery device/system.	Level Ib
	2.3 Nurses will be able to assess for potential barriers to asthma management. The nurse will be able to offer strategies to meet families' needs and support them in overcoming issues leading to treatment failure.	Level IV
Asthma Education	3.0 The nurse will provide asthma education, in collaboration with the health care team, as an essential part of care.	Level Ia
	4.0 Child/family knowledge of asthma should be assessed by the nurse at each patient contact. Asthma education should be provided when knowledge and skill gaps are identified.	Level Ia
	4.1 Tailor asthma education to the needs of the child and family by being developmentally appropriate, sensitive to cultural beliefs and practices, and by using a variety of teaching methods (e.g., video, pamphlets, Web sites, group, role playing, problem-solving).	Level IV
	5.0 The nurse can use a structured framework to build both the child's and family's knowledge of asthma and self-management skills by providing basic asthma education. A partnership between the nurse, child, and family is important to engage the child and family in an interactive educational process.	Level IV
Action Plans	6.0 All children will have an individualized asthma action plan for guided self-management, based on the evaluation of symptoms, with or without peak flow measurements, developed in partnership with a health care professional.	Level Ia

	Recommendation	Level of Evidence
	6.1 The action plan must be reviewed, revised, and reinforced in partnership with the parent/caregiver, child, and health care professional during every contact. The nurse will coach the parent to act as an advocate for their child, ensuring that the action plan is kept up to date.	Level Ia
Referral and Follow-up	7.0 The nurse should facilitate follow-up assessments and education to achieve and maintain control of asthma for the child diagnosed with asthma.	Level Ia
	7.1 The nurse will determine the child's primary care asthma management provider by asking "Who do you see for your asthma management?"	Level IV
	7.2 Nurses should advocate for a referral to an asthma specialist (respirologist, allergist, paediatrician, Certified Asthma Educator, etc.) for the following: frequent visits to the emergency department; poor understanding of asthma self-management; symptoms are not responding to usual treatment; and/or uncertainty of diagnosis.	Level IV
	7.3 Nurses should advocate for referral to an asthma education program and/or link to community resources, if available.	Level IV
Education Recommendations	<p>8.0 Nurses working with children with asthma must have the appropriate knowledge and skills to:</p> <ul style="list-style-type: none"> <li>• identify the level of asthma control</li> <li>• provide basic developmentally appropriate asthma education</li> <li>• identify the need for follow-up with primary care provider and/or community resources</li> </ul>	Level IV
Organization and Policy Recommendations	9.0 Organizational leadership must maintain a commitment to best practice guideline implementation.	Level IV
	9.1 Organizations must maintain a commitment to	Level IV



	Recommendation	Level of Evidence
	<p>sustain the healthy work environment required to support guideline implementation:</p> <ul style="list-style-type: none"> <li>• A critical mass of nurses educated and supported in guideline implementation</li> <li>• Care delivery systems and adequate staffing that support the nurses' ability to implement these guidelines</li> <li>• A sustained commitment to evidence-based practice in paediatric asthma care</li> </ul>	
	9.2 Organizations must promote a collaborative practice model within a multidisciplinary team to enhance asthma care. This approach must include all health care professionals and community caregivers involved with the child.	Level IV
	<p>9.3 Organizations need to plan and provide appropriate material resources to implement these best practice guidelines. Specifically, they must have:</p> <ul style="list-style-type: none"> <li>• Placebos and spacer devices for teaching</li> <li>• Sample templates for action plans</li> <li>• Educational materials</li> <li>• Documentation tools</li> <li>• Resources for child/family and nurse education</li> <li>• Peak flow or other monitoring equipment, when indicated</li> </ul>	Level IV
	9.4 Organizations are encouraged to develop key indicators and outcome measurements that will allow them to monitor the implementation of the guidelines, the impact of the guidelines on optimizing quality patient care, as well as any efficiencies, or cost effectiveness achieved.	Level IV
	10.0 Nursing best practice guidelines can be successfully implemented only where there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation. Organizations may wish to develop a plan for implementation that includes:	Level IV

	Recommendation	Level of Evidence
	<ul style="list-style-type: none"> <li>• An assessment of organizational readiness and barriers to education</li> <li>• Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process</li> <li>• Dedication of a qualified individual to provide the support needed for the education and implementation process</li> <li>• Ongoing opportunities for discussion and education to reinforce the importance of best practices</li> <li>• Opportunities for reflection on personal and organizational experience in implementing guidelines</li> </ul> <p>In this regard, the Registered Nurses Association of Ontario (RNAO) (through a panel of nurses, researchers and administrators) has developed the Toolkit: Implementation of Clinical Practice Guidelines based on available evidence, theoretical perspectives and consensus. The Toolkit is recommended for guiding the implementation of the RNAO guideline Promoting Asthma Control in Children.</p>	
	<p>11.0 Government agencies responsible for the allocation of funding must recognize the critical role of a seamless continuum of care in promoting asthma control in children. This must include recognition and funding for the following:</p> <ul style="list-style-type: none"> <li>• Health promotion activities provided by Public Health Nurses in such venues as schools</li> <li>• Acute care provided by nurses as part of health care teams in hospitals and community physician offices</li> <li>• Long-term care, provided by community health nurses in family homes</li> </ul>	Level IV
	<p>12.0 Nurses should seek opportunities to advocate for the promotion of optimal asthma care for</p>	Level IV

	Recommendation	Level of Evidence
	children and families affected by asthma.	

### Definitions:

#### Level of Evidence

I a - Evidence obtained from meta-analysis or systematic review of randomized controlled trials

I b - Evidence obtained from at least one randomized controlled trial

II a - Evidence obtained from at least one well-designed controlled study without randomization

II b - Evidence obtained from at least one other type of well-designed quasi-experimental study, without randomization

III - Evidence obtained from well-designed nonexperimental descriptive studies, such as comparative studies, correlation studies, and case studies

IV - Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for each recommendation (see "Major recommendations").

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

The overall aim of asthma management is to control airway inflammation. The specific goals of controlling asthma and the underlying airway inflammation include:

- Symptom control (cough, wheeze, chest tightness and breathlessness) during the day, night and with exercise

- The prevention of exacerbations
- The achievement of best possible pulmonary function
- The identification of the least medication required with the fewest side effects

Nurses who are knowledgeable in asthma control will be able to:

- Identify early indicators of poorly controlled asthma
- Positively influence self-care practices
- Facilitate the referral of individuals to community resources and specialized care.

These actions can lead to optimal asthma control, improved quality of life for individuals with asthma, and reduce the burden of health care costs.

#### POTENTIAL HARMS

Not stated

### QUALIFYING STATEMENTS

#### QUALIFYING STATEMENTS

- The document needs to be reviewed and applied, based on the specific needs of the organization or practice setting/environment, as well as the needs and wishes of the client. Guidelines should not be applied in a "cookbook" fashion but used as a tool to assist in decision making for individualized client care, as well as ensuring that appropriate structures and supports are in place to provide the best possible care.
- These best practice guidelines are related only to nursing practice and not intended to take into account fiscal efficiencies. These guidelines are not binding for nurses and their use should be flexible to accommodate client/family wishes and local circumstances. They neither constitute a liability nor discharge from liability. While every effort has been made to ensure the accuracy of the contents at the time of publication, neither the authors nor the Registered Nurses Association of Ontario (RNAO) give any guarantee as to the accuracy of the information contained in them nor accept any liability, with respect to loss, damage, injury or expense arising from any such errors or omission in the contents of this work. Any reference throughout the document to specific pharmaceutical products as examples does not imply endorsement of any of these products.
- The guideline contains recommendations for Registered Nurses and Registered Practical Nurses on best nursing practices in the area of paediatric asthma. It is intended for nurses who may not be experts in asthma care and who work in a variety of practice settings across the continuum of care. It is acknowledged that the individual competencies of nurses vary between nurses and across categories of nursing professionals and are based on knowledge, skills, attitudes, critical analysis and decision making, which are enhanced over time by experience and education. It is expected that individual nurses will perform only those aspects of asthma assessment and management for which they have appropriate education and experience and

that they will seek appropriate consultation in instances where the client's care needs surpass their ability to act independently.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

Best practice guidelines can only be successfully implemented if there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation. The Registered Nurses Association of Ontario (RNAO), through a panel of nurses, researchers, and administrators, has developed the Toolkit: Implementation of Clinical Practice Guidelines based on available evidence, theoretical perspectives, and consensus. The Toolkit is recommended for guiding the implementation of any clinical practice guideline in a health care organization.

The Toolkit provides step-by-step directions to individuals and groups involved in planning, coordinating, and facilitating guideline implementation. Specifically, the Toolkit addresses the following key steps:

1. Identifying a well-developed, evidence-based clinical practice guideline
2. Identification, assessment, and engagement of stakeholders
3. Assessment of environmental readiness for guideline implementation
4. Identifying and planning evidence-based implementation strategies
5. Planning and implementing evaluation
6. Identifying and securing required resources for implementation

Implementing practice guidelines that result in successful practice changes and positive clinical impact is a complex undertaking. The Toolkit is one key resource for managing this process.

### Evaluation and Monitoring

Organizations implementing the recommendations in this nursing best practice guideline are advised to consider how the implementation and its impact will be monitored and evaluated. A table found in the original guideline document, based on the framework outlined in the RNAO Toolkit: Implementation of clinical practice guidelines (2002), illustrates some suggested indicators for monitoring and evaluation.

### IMPLEMENTATION TOOLS

#### Tool Kits

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Living with Illness

### IOM DOMAIN

Effectiveness

Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Registered Nurses Association of Ontario (RNAO). Promoting asthma control in children. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2004 May. 117 p. [187 references]

### ADAPTATION

The panel, following the appraisal process, identified the following guidelines, and related updates, to adapt and modify recommendations:

- Boulet, L. et al. (1999). Canadian asthma consensus report: 1999. Canadian Medical Association. [On-line]. Available: [http://www.cmaj.ca/cgi/reprint/161/11\\_suppl\\_1/s1.pdf](http://www.cmaj.ca/cgi/reprint/161/11_suppl_1/s1.pdf)
- British Thoracic Society and Scottish Intercollegiate Guidelines Network (2003). British guideline on the management of asthma. [On-line]. Available: <http://www.sign.ac.uk/guidelines/fulltext/63/index.html>
- Global Initiative for Asthma (2002). Global strategy for asthma management and prevention. [On-line]. Available: <http://www.ginasthma.com>
- Institute for Clinical Systems Improvement (2002). Health care guideline. Diagnosis and management of asthma. [On-line]. Available: <http://www.ICSI.org>
- National Institutes of Health (1997). Guidelines for the diagnosis and management of asthma (Rep. No. 2). NIH Publication.
- National Institutes of Health. (2002). National asthma education and prevention program expert panel report: Guidelines for the diagnosis and management of asthma update on selected topics – 2002. The Journal of Allergy and Clinical Immunology, 110(5), S141-S219.

An update to the 1999 Canadian Asthma Consensus Report was not included in the initial AGREE review, however the panel determined that this document should be included as a companion to the Boulet et al. (1999) document:

- Boulet, L., Bai, T.R., Becker, A., Berube, D., Beveridge, R., Bowie, D. et al. (2001). What is new since the last (1999) Canadian Asthma Consensus Guidelines? Canadian Respiratory Journal, 8(Suppl A). 5A-27A.

DATE RELEASED

2004 May

GUIDELINE DEVELOPER(S)

Registered Nurses Association of Ontario - Professional Association

SOURCE(S) OF FUNDING

Funding was provided by the Ontario Ministry of Health and Long Term Care.

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Guideline Development Panel Members

Jennifer Olajos-Clow, RN, BA/BPHE, BNSc, MSc, CAE  
Team Leader  
Asthma Educator  
Kingston General Hospital  
Kingston, Ontario

Lisa Cicutto, RN, ACNP, PhD, CAE  
Assistant Professor, Acute Care Nurse  
Practitioner – Respiratory  
University of Toronto  
Ministry of Health and Long Term Care –Career Scientist  
Toronto, Ontario

Julie Duff Cloutier, RN, BScN, MSc, CAE  
Assistant Professor  
Laurentian University – School of Nursing  
Sudbury, Ontario

Bonnie Fleming-Carroll, RN, MN, ACNP  
Clinical Nurse Specialist/Nurse  
Practitioner – Respiratory Medicine  
The Hospital for Sick Children  
Toronto, Ontario

Jacqueline Geremia, RN, BSc, MN, CAE  
Asthma Education Centre  
The Scarborough Hospital – Grace Division  
Scarborough, Ontario

Helene Lacroix, RN, BNSc, MSc  
Clinical Services Expert

Saint Elizabeth Health Care  
Markham, Ontario

Louise Martin, RN, BN  
Critical Pathway Coordinator  
Children's Hospital of Eastern Ontario  
Ottawa, Ontario

Heather McConnell, RN, BScN, MA(Ed)  
RNAO Project Staff – Facilitator  
Project Manager, Nursing Best Practice Guidelines Project  
Registered Nurses Association of Ontario  
Toronto, Ontario

Anne-Marie Moore, RN, CAE  
Chest Service Nurse Coordinator  
Children's Hospital of Eastern Ontario  
Ottawa, Ontario

Suzanne Murphy, RN, CAE  
Research Assistant  
University of Toronto  
Asthma Educator  
Credit Valley Hospital  
Mississauga, Ontario

Charlene Piche, RN, CAE  
Cystic Fibrosis Program Nurse/Paediatric  
Outpatient Clinic Nurse  
Sudbury Regional Hospital - Laurentian Site  
Sudbury, Ontario

Sarah Seibert, RN, BScN, MScN  
Research Assistant  
University of Ottawa  
Staff Nurse  
Children's Hospital of Eastern Ontario  
Ottawa, Ontario

#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Declarations of interest and confidentiality were made by all members of the guideline development panel. Further details are available from the Registered Nurses Association.

#### GUIDELINE STATUS

This is the current release of the guideline.

#### GUIDELINE AVAILABILITY



Electronic copies: Available in Portable Document Format (PDF) from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).

Print copies: Available from the Registered Nurses Association of Ontario (RNAO), Nursing Best Practice Guidelines Project, 158 Pearl Street, Toronto, Ontario M5H 1L3.

#### AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Summary of recommendations. Promoting asthma control in children. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2004 May. 4 p.

Electronic copies: Available in Portable Document Format (PDF) from the [Registered Association of Ontario \(RNAO\) Web site](#).

- Toolkit: implementation of clinical practice guidelines. Toronto (ON): Registered Nurses Association of Ontario (RNAO); 2002 Mar. 88 p.

Electronic copies: Available in Portable Document Format (PDF) from the [Registered Nurses Association of Ontario \(RNAO\) Web site](#).

Print copies: Available from the Registered Nurses Association of Ontario (RNAO), Nursing Best Practice Guidelines Project, 158 Pearl Street, Toronto, Ontario M5H 1L3.

#### PATIENT RESOURCES

None available

#### NGC STATUS

This NGC summary was completed by ECRI on November 4, 2004. The information was verified by the guideline developer on November 23, 2004.

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Registered Nurses Association of Ontario (2004). Promoting asthma control in children. Toronto, Canada: Registered Nurses Association of Ontario.

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